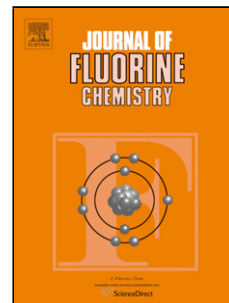


## Accepted Manuscript

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## Metal-free trifluoromethylthiolation of arenediazonium salts with $\text{Me}_4\text{N}^+\text{SCF}_3^-$

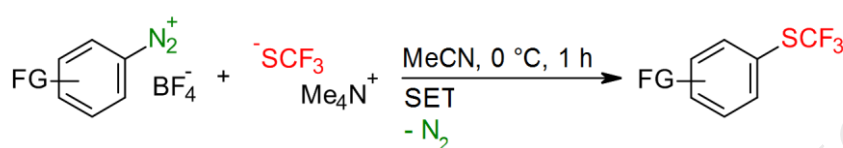
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### Graphical abstract



### Highlights

- Arenediazonium salts are converted into aryl trifluoromethyl thioethers without the use of any metal mediators.
- The transformation is based on readily available starting materials and tolerates various functional groups.
- Cyclic voltammetry was used to elucidate the reaction mechanism.
- The aryltrifluoromethyl thioether products are interesting for applications in drug discovery.

### Abstract

A metal-free entry to the pharmaceutically meaningful substrate class of trifluoromethyl thioethers has been developed starting from widely available arenediazonium salts and commercially available  $\text{Me}_4\text{N}^+\text{SCF}_3^-$ . This reaction proceeds within one hour at 0 °C and is applicable to a wide range of functionalized substrates.

Keywords: trifluoromethylthiolations; arenediazonium salts; trifluoromethyl thioethers; radicals; cyclovoltammetry

### 1. Introduction

Fluorine-containing molecules are abundant in pharmaceuticals, agrochemicals, material and surface sciences.[1] Their increased lipophilicity compared to the non-fluorinated analogs allows modulating solubility, bioavailability and adhesive properties. Hence, powerful methods for the selective introduction of fluorinated residues into functionalized molecules are constantly sought. In this context, SCF<sub>3</sub> groups, which induce particularly high lipophilicity and membrane permeability[2] have recently received increased attention. Examples of biologically active compounds containing SCF<sub>3</sub> groups include vaniliprole, toltrazuril and tiflorex (Figure 1).

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